

MATERIAL SAFETY DATA SHEET

SRM Supplier: National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2320
Gaithersburg, Maryland 20899-2320

SRM Number: 1941b
MSDS Number: 1941b
SRM Name: Organics in Marine
Sediment

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MSDS Coordinator: Carmen S. Davis
Phone: (301) 975-6776
ChemTrec: 1-800-424-9300

FAX: (301) 926-4751
E-mail: SRMMSDS@nist.gov

SECTION I. MATERIAL IDENTIFICATION

Material Name: Organics in Marine Sediment

Description: Standard Reference Material (SRM) 1941b is marine sediment collected at the mouth of the Baltimore Harbor. SRM 1941b is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyl (PCB) congeners, and chlorinated pesticides in marine sediment and similar matrices. Information is also provided for total organic carbon, carbon, hydrogen, and nitrogen. All of the constituents for which certified, reference, and information values are provided in SRM 1941b were naturally present in the sediment material before processing. A unit of SRM 1941b consists of a bottle containing 50 g of radiation-sterilized, freeze-dried sediment material.

Other Designations: Reference individual compounds.

Name	Chemical Formula	CAS Registry Number ^(a)
PAHs, PCBs, and Chlorinated Pesticides	complex mixture	see individual compounds

^(a) For the CAS Registry Numbers of the PAHs, PCBs, and chlorinated pesticides in this material, refer to the corresponding compound.

DOT Classification: Not regulated by DOT.

The matrix of this material is marine sediment. The material has been radiation sterilized (⁶⁰Co).

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Components			Nominal Concentration	Exposure Limits and Toxicity Data ^(a)
Certified Selected PAHs Naphthalene Fluorene Phenanthrene Anthracene 3-Methylphenanthrene 2-Methylphenanthrene 1-Methylphenanthrene Fluoranthene Pyrene Benz[a]anthracene Chrysene Triphenylene Benzo[b]fluoranthene Benzo[k]fluoranthene Benzo[e]pyrene Benzo[a]pyrene Perylene Benzo[ghi]perylene Indeno[1,2,3-cd]pyrene Dibenz[a,j]anthracene Dibenz[a,h]anthracene Dibenz[a,h]anthracene Benzo[b]chrysene Picene Certified Chlorinated Pesticides Hexachlorobenzene cis-Chlordane trans-Chlordane trans-Nonachlor 4,4'-DDE 4,4'-DDD	Certified Selected PCB Congeners PCB 8 (2,4'-Dichlorobiphenyl) PCB 18 (2,2',5-Trichlorobiphenyl) PCB28 (2,4,4'-Trichlorobiphenyl) PCB 31 (2,4',5-Trichlorobiphenyl) PCB 44 (2,2',3,5'-Tetrachlorobiphenyl) PCB 49 (2,2',4,5'-Tetrachlorobiphenyl) PCB 52 (2,2',5,5'-Tetrachlorobiphenyl) PCB 66 (2,3',4,4'-Tetrachlorobiphenyl) PCB 87 (2,2',3,4,5'-Pentachlorobiphenyl) PCB 95 (2,2',3,5',6-Pentachlorobiphenyl) PCB 99 (2,2',4,4',5-Pentachlorobiphenyl) PCB 101 (2,2',4,5,5'-Pentachlorobiphenyl) PCB 105 (2,3,3',4,4'-Pentachlorobiphenyl) PCB 110 (2,3,3',4',6-Pentachlorobiphenyl) PCB 118 (2,3',4,4',5-Pentachlorobiphenyl) PCB 128 (2,2',3,3',4,4'-Hexachlorobiphenyl) PCB 138 (2,2',3,4,4',5'-Hexachlorobiphenyl) PCB 149 (2,2',3,4,5',6-Hexachlorobiphenyl) PCB 153 (2,2',4,4',5,5'-Hexachlorobiphenyl) PCB 156 (2,3,3',4,4',5-Hexachlorobiphenyl) PCB 170 (2,2',3,3',4,4',5-Heptachlorobiphenyl) PCB 180 (2,2',3,4,4',5,5'-Heptachlorobiphenyl) PCB 183 (2,2',3,4,4',5',6-Heptachlorobiphenyl) PCB 187 (2,2',3,4,5',6-Heptachlorobiphenyl) PCB 194 (2,2',3,3',4,4',5,5'-Octachlorobiphenyl) PCB 195 (2,2',3,3',4,4',5,6-Octachlorobiphenyl) PCB 201 (2,2',3,3',4,5',6,6'-Octachlorobiphenyl) PCB 206 (2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl) PCB 209 Decachlorobiphenyl Reference Selected PCB Congeners PCB 45 (2,2',3,6-Tetrachlorobiphenyl) PCB 56 (2,3,3',4-Tetrachlorobiphenyl) PCB 63 (2,3,4',5-Tetrachlorobiphenyl) PCB 70 (2,3',4',5-Tetrachlorobiphenyl) PCB 74 (2,4,4',5-Tetrachlorobiphenyl) PCB 77 (3,3',4,4'-Tetrachlorobiphenyl) PCB 107 (2,3,3',4,5'-Pentachlorobiphenyl) PCB 132 (2,2',3,3',4,6'-Hexachlorobiphenyl) PCB 146 (2,2',3,4',5,5'-Hexachlorobiphenyl) PCB 158 (2,3,3',4,4',6-Hexachlorobiphenyl) PCB 163 (2,3,3',4',5,6-Hexachlorobiphenyl) PCB 174 (2,2',3,3',4,5,6'-Heptachlorobiphenyl) PCB 193 (2,3,3',4',5,5',6-Heptachlorobiphenyl)	Reference Selected PAHs Coronene Dibenzo[b,e]fluoranthene Naphtho[1,2-b]fluoranthene Naphtho[1,2-k]fluoranthene and Naphtho[2,3-j]fluoranthene Naphtho[2,3-b]fluoranthene Dibenzo[b,k]fluoranthene Dibenzo[a,k]fluoranthene Dibenzo[j,l]fluoranthene Dibenzo[a,l]pyrene Naphtho[2,3-k]fluoranthene Naphtho[2,3-e]pyrene Dibenzo[a,e]pyrene Naphtho[2,1-a]pyrene Dibenzo[e,i]pyrene Naphtho[2,3-a]pyrene Benzo[b]perylene Dibenzo[a,i]pyrene Dibenzo[a,h]pyrene 1-Methylnaphthalene 2-Methylnaphthalene 2,6-Dimethylnaphthalene 2,3,5-Trimethylnaphthalene Biphenyl Acenaphthylene Acenaphthene 9-Methylphenanthrene 4-Methylphenanthrene 2-Methylanthracene 8-Methylfluoranthene 7-Methylfluoranthene 1-Methylfluoranthene 3-Methylfluoranthene 2-Methylpyrene 4-Methylpyrene 1-Methylpyrene Acephenanthrene Benzo[c]phenanthrene Benzo[a]fluoranthene Benzo[j]fluoranthene Benzo[1,2,3-cd]fluoranthene Pentaphene	Not Applicable	Not Applicable

^(a)This material contains organic materials (PAHs, PCB congeners, and chlorinated pesticides), many of which have been reported to have toxic, mutagenic, and/or carcinogenic properties, and should be handled with care. The carcinogens in this material have a total concentration < 0.1 % and **DO NOT** require individual MSDS information under current regulations. For the actual concentrations, see the corresponding Certificate of Analysis.

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Organics (PAHs, PCB congeners, and Chlorinated Pesticides)

Appearance and Odor: Many organics have a strong odor.

Molecular Weight: Variable; reference individual compound.

Water Solubility: Most organics listed are insoluble in water. Some are slightly soluble.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not applicable. **Method Used:** Not applicable. **Autoignition Temperature:** Not applicable.
Stable at normal temperatures and pressure.

Flammability Limits in Air (Volume %): UPPER: Not applicable.
LOWER: Not applicable.

Unusual Fire and Explosion Hazards: The major hazards of organic materials involved in fires are associated with the possibility of the contaminants being released into the environment where they and their products of degeneration can pose serious long-term health risks.

Extinguishing Media: Use alcohol-resistant foam, dry chemical, carbon dioxide, or water spray.

Special Fire Procedures: Fire fighters should wear a self-contained breathing apparatus (SCBA) with a full face piece in the pressure demand or positive mode and other protective clothing.

SECTION V. REACTIVITY DATA

Stability: X Stable Unstable

Conditions to Avoid: Avoid contact with heat, sparks, flames, or other sources of ignition. Avoid inhalation of vapors or combustion by-products. Avoid contact with the skin. **DO NOT** allow the material to contaminate water sources.

Incompatibility (Materials to Avoid): Organics are incompatible with oxidizing agents.

See Section IV: "Unusual Fire and Explosion Hazards".

Hazardous Decomposition or Byproducts: Thermal decomposition products of organics may include toxic oxides of carbon.

Hazardous Polymerization: Will Occur X Will Not Occur

SECTION VI. HEALTH HAZARD DATA

Route of Entry: X Inhalation X Skin X Ingestion

Organics: Many of the organics in this material are known or suspected carcinogens with mutagenic properties. Exposure to organic materials can cause cough, confusion, ataxia, headache, weakness, and dizziness. Ingestion may cause abdominal pain, nausea, vomiting, and diarrhea. Most organics are liver toxins.

Medical Conditions Generally Aggravated by Exposure: Not available.

Listed as a Carcinogen/Potential Carcinogen (PAHs, PCB Congeners, and Chlorinated Pesticides):

	Yes*	No
In the National Toxicology Program (NTP) Report on Carcinogens	_____	_____
In the International Agency for Research on Cancer (IARC) Monographs	_____	_____
By the Occupational Safety and Health Administration (OSHA)	_____	_____

*Many PAHs, PCB Congeners, and chlorinated pesticides are classified as carcinogens or potential carcinogens. Refer to individual compounds for carcinogenic status.

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Watch for chemical irritations and treat them accordingly. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance.

Inhalation: If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration by qualified personnel. Obtain medical assistance if necessary.

Ingestion: If ingested, wash out mouth with water. Obtain medical assistance immediately.

TARGET ORGAN(S) OF ATTACK: Organics: Liver.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Notify safety personnel of major spills and/or leaks. Evacuate nonessential personnel. Stop the leak if one can do so without risk. Absorb small spills with sand or other absorbent material and place into containers for disposal.

Waste Disposal: Follow all federal, state, and local laws governing disposal. Keep out of water supplies and sewers.

Handling and Storage: Persons handling this material must wear protective eyewear, clothing, and gloves to prevent contact with this material.

NOTE: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

This material should be stored in a cool, dry, well-ventilated area away from incompatible materials and conditions. Protect containers from physical damage.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: Merck Index, 11th Ed., 1989.
The Sigma Aldrich Library of Chemical Safety Data, Ed. II, 1988.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data on the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.